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(54) Title: PRE-PAINT TREATMENT OF METAL AND PRODUCT THEREOF

(57) **Abstract:** A chromium-free liquid treatment composition that contains (a) at least one resin selected from a group consisting of urethane resins, epoxy resins, and acrylic resins, (b) at least one silane coupling agent, and (c) dispersed solid particles with a mean particle diameter of 1 µm or less provides a metallic surface, optionally already having a chemical plating or phosphate conversion coating, with superior corrosion resistance and paint adherence after subsequent painting. Of the non-volatiles content of the liquid treatment composition, (a) is 20 to 70 percent by weight, (b) is 10 to 60 percent by weight, and (c) is 10 to 40 percent by weight. This treatment composition is used by forming on the surface to be treated a liquid layer of the treatment composition that has a non-volatiles content of 0.05 to 1.0 g/m<sup>2</sup> and then drying the liquid layer into place on the surface to form the protective coating.

## ABSTRACT OF THE DISCLOSURE

A chromium-free liquid treatment composition that contains (a) at least one resin selected from a group consisting of urethane resins, epoxy resins, and acrylic resins, (b) at least one silane coupling agent, and (c) dispersed solid particles with a mean particle diameter of 1  $\mu\text{m}$  or less provides a metallic surface, optionally already having a chemical plating or phosphate conversion coating, with superior corrosion resistance and paint adherence after subsequent painting. Of the non-volatiles content of the liquid treatment composition, (a) is 20 to 70 percent by weight, (b) is 10 to 60 percent by weight, and (c) is 10 to 40 percent by weight. This treatment composition is used by forming on the surface to be treated a liquid layer of the treatment composition that has a non-volatiles content of 0.05 to 1.0 g/m<sup>2</sup> and then drying the liquid layer into place on the surface to form the protective coating.